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IS 6910 (1985): Method of testing corrosion resistance of electroplated and anodized aluminium coatings by acetic acid salt spray (AAS) test [MTD 24: Corrosion Protection]



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Indian Standard

METHOD OF
TESTING CORROSION RESISTANCE OF
ELECTROPLATED AND ANODIZED ALUMINIUM
COATINGS BY ACETIC ACID SALT SPRAY TEST

(First Revision)

UDC 620.193.272 : 621.357.7 + 669.716.915



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

METHOD OF TESTING CORROSION RESISTANCE OF ELECTROPLATED AND ANODIZED ALUMINIUM COATINGS BY ACETIC ACID SALT SPRAY TEST (First Revision)

Metallic and Non-Metallic Finishes Sectional Committee, SMDC 23

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Indian Standard

METHOD OF TESTING CORROSION RESISTANCE OF ELECTROPLATED AND ANODIZED ALUMINIUM COATINGS BY ACETIC ACID SALT SPRAY TEST (*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 15 February 1985, after the draft finalized by the Metallic and Non-Metallic Coatings Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 The standard was first published in 1973. The present revision has been found necessary in view of the development in the field of electroplating, testing of corrosion resistance and international standardization.

0.2.1 In this revision, the scope has been extended to metallic coatings including copper + nickel + chromium coatings on various bases, designated for relatively severe service.

0.2.2 In this revision, the construction of the cabinet, recommended earlier in Appendix A has now been incorporated in a separate specification (*under preparation*) where in a common recommendation for the apparatus is expected to satisfy the requirements of different salt spray tests, namely, the natural (NSS), the acetic acid (ASS) and the copper-accelerated acetic acid (CASS). Specified tests, exposure duration and evaluation of corrosion resistance test stipulated in various Indian Standards have also been incorporated in Appendix B.

0.3 The requirements regarding the corrosion resistance of electroplated, anodic and other metallic coatings or products have been specified in the respective Indian Standards. Comprehensive accelerated corrosion tests are used to obtain a rating of the behaviour of these coatings to enable to correlate with service exposures as far as possible and in a short duration.

0.3.1 The reliability, reproducibility and accuracy of the ASS test depends on proper and consistent control of a number of factors, including:

- a) cleaning of the test specimens,
- b) positioning of the specimens and samples in the spray-cabinet,
- c) rate of condensation within the spray cabinet,
- d) the maintainance of the spray cabinet, and
- e) temperature control in the spray cabinet.

0.3.2 There is seldom a direct relation between resistance to the action of salt spray and resistance to corrosion in other media because several factors influencing the progress of corrosion, such as the formation of protective films vary greatly with the conditions encountered. Therefore, the results obtained in the test should not be regarded as a direct guide to the corrosion resistance of the tested coatings in all environments where these coatings may be used. Also, performance of different coatings in the test should not be taken as a direct guide to relative corrosion resistance of these coatings in service.

0.4 While preparing this revision, necessary assistance has been derived from ISO 3769-1976 (E) Metallic coatings — Acetic acid salt spray test (ASS test), issued by the International Organization for Standardization.

0.5 In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard specifies the apparatus, reagents and the procedure to be used and prescribes the conditions for conducting the acetic acid salt spray (ASS) test for assessment of the quality, by way of corrosion resistance, of metallic coatings applied in accordance with the requirements of the respective coating or product specifications.

1.2 The detailed requirements of this method have no significance other than to ensure that comparable results are obtained by different laboratories, testing the same coating or product. This method of testing is especially useful for testing decorative coatings of copper + nickel + chromium or nickel + chromium; it has also been found suitable for testing anodic coatings of thickness between 3 to 5 micrometres on aluminium.

*Rules for rounding off numerical values (revised).

1.2.1 The suitability of this test and the correlation of the results with service exposures should be determined before it is specified for coatings other than those mentioned earlier.

1.3 This standard does not specify the type of test specimen, the exposure period for a particular coating or product, or the interpretation of results. Such details are given in the appropriate coating or products specifications.

2. TEST SOLUTION

2.1 The test solution shall be prepared by dissolving sodium chloride in distilled or de-ionized water (*see* Note) to produce a concentration of 50 ± 5 g/l. The sodium chloride (NaCl), shall be white and give a colourless solution in water. It shall be substantially free from copper and nickel and shall not contain sodium iodide more than 0.1 percent and not more than 0.4 percent of total impurities, calculated for dry salt (*see* Note). If the pH of the solution so prepared is outside the range of 6.0 to 7.0, the presence of undesirable impurities in the salt or the water or both should be suspected and investigated.

NOTE—The distilled water shall be as per IS: 1070-1977* NaCl , and CH_3COOH shall be of AR quality.

2.2 A sufficient quantity of glacial acetic acid (CH_3COOH) (*see* Note) shall be added to the test solution (prepared as per 2.1) in the spray-cabinet and pH will be between 3.1 and 3.3. If the pH of the test solution initially prepared as above, is 3.0 to 3.1, the pH of the sprayed solution condensate is likely to be within the specified limits as per 6.2. All pH values shall be measured electro-metrically at 25°C , but a short range pH paper which can be read in increments of 0.1 pH unit or less and which has been calibrated against electrometric measurements may be used in routine checks. Any necessary correction shall be made by additions of solutions of glacial acetic acid or sodium hydroxide of analytical grade.

NOTE—The distilled water shall be as per IS: 1070-1977* NaCl , and CH_3COOH shall be of AR quality.

(Generally, if less than 5.0 or more than 6.0 ml of glacial acetic acid is required per 3.8 litres of the NaCl solution to attain the specified pH , the purity of the water or salt or both, general cleanliness of the system, accuracy of pH -meter, etc, may not be satisfactory).

2.3 The test solution so prepared shall be filtered before it is placed in the reservoir of the apparatus, in order to remove any solid matter which might block the apertures of the spraying devices.

NOTE—The distilled water shall be as per IS: 1070-1977* NaCl , and CH_3COOH shall be of AR quality.

*Specification for water for general laboratory use (*second revision*).

3. APPARATUS

3.1 The spray cabinet shall be of minimum 0.4 m^3 capacity, made of or lined with material resistant to corrosion by the sprayed solution and so shaped as not to allow the condensate to fall on the test specimens, having facility to maintain the inside temperature in the spray cabinet as per **6.1** and provided with one or more atomizers made of material inert to the spray of the test solution. The test solution shall be contained in a reservoir capable of maintaining a constant level of the test solution and made of material resistant to corrosion by the test solution, and shall be sprayed through such atomizers with the help of duly filtered and adequately humidified compressed air supplied at a pressure of 70 to 170 kPa.

3.2 The size and shape of the spray cabinet, compressed air pressure, appropriate temperature, type of atomizer nozzle and the overall arrangement of the system shall be selected as to obtain the rate of collection and the values of the condensate solution, collected in at least two collecting devices of 80 cm^2 horizontal collecting area for each—placed one close to the inlet, are kept within the limits as per **6.2**.

3.3 Details of the construction and function of the spray cabinet have been incorporated in a separate specification (*under preparation*). Recommended construction details of apparatus for spray cabinet useful for various salt spray tests.

4. TEST SPECIMEN

4.1 Selection — The number and type of test specimens, their shape and dimensions shall be selected according to the specification covering the coating or product being tested. When not so specified, details concerning the specimens shall be mutually agreed to between the purchaser and the supplier.

4.2 Cleaning — The specimens shall be thoroughly cleaned before testing. The method employed shall depend on the nature of the surface (coating) and of the contaminants and shall not include the use of any abrasives or solvents which may attack the coated surface of the specimens.

NOTE — Metallic and metallic coated specimens shall be cleaned immediately prior to testing by wiping the significant surface with a cotton swab saturated with a slurry containing 1.0 g of pure magnesium oxide powder in 100 ml of distilled water followed by rinsing in warm running water. Anodized aluminium parts shall be cleaned with inhibited 1,1,1-trichloroethane, carrying out the cleaning in a well ventilated area away from open flames. Organic and other non-metallic coated specimens should not be cleaned. Other methods of cleaning, such as the use of nitric acid solution for the chemical cleaning or passivation of stainless steel specimens are permissible when agreed upon by the purchaser and the supplier.

4.2.1 Care shall be taken that the specimens are not re-contaminated after cleaning by excessive or careless handling.

4.3 Protecting Cut Edges — If the test specimens are cut from a larger coated article, the cutting shall be carried out in such a way that the coating is not damaged in the area adjacent to the cut to prevent galvanic effect. Unless otherwise specified, the cut edges shall be adequately protected by coating them with a suitable medium stable under the conditions of the test, such as paint, wax or adhesive tape. Areas with identification marks may also be protected suitably.

5. METHOD OF EXPOSURE OF TEST SPECIMENS

5.1 Placement — The specimens shall be so placed in the spray-cabinet such that they are not in the direct line of travel of spray from the atomizers. Baffles may be used to prevent direct impact of the sprayed solution on the specimens.

5.2 Angle of Exposure — The angle at which the specimen is exposed in the spray-cabinet is very important. The surface shall, in principle, be flat and placed in the cabinet facing upwards at an angle as close as possible to 20° to the vertical. This angle shall, in all cases, be within the limits of 15° to 30° .

5.2.1 Due care shall be taken to see that the significant surface of the specimen is properly exposed to the spray of the test solution, as above.

5.2.2 In case of irregular surfaces, for example, entire components, the above limits shall be adhered to as closely as possible.

5.3 Arrangement — The specimens shall be so arranged that they do not come into contact with one another or with the cabinet and that surfaces to be tested are exposed to free circulation of spray. The specimens may be placed at different levels within the cabinet as long as the solution condensate may not drip from specimens or their supports at one level into other specimens placed below.

5.4 Material for Supports — The supports or racks for the specimens shall be made of inert non-metallic material, such as glass, plastics, rubber or suitably coated wood. If it is necessary to suspend test specimens, the material used shall on no account be metallic and shall be synthetic fibre, cotton thread or other inert insulating material.

5.5 When to Place — The specimens shall be placed in the spray-cabinet just prior to bringing in the temperature in the cabinet to the required level and turning on the compressed air, since storage in an idle chamber overnight or for a significant length of time, can affect the test results.

6. OPERATING CONDITIONS

6.1 Temperature — The temperature inside the spray-cabinet shall be $35 \pm 2^\circ\text{C}$ with the minimum possible fluctuation throughout the cabinet during the test.

NOTE — This can be best accomplished by preheating the cabinet to 35°C before starting the atomization of the test solution. The air supply shall be heated by passing fine bubbles of air supply through heated distilled de-ionized water, so that the temperature of the air after expansion at the atomizer nozzle is $35 \pm 2^\circ\text{C}$. The test duration shall be computed from the time the temperature reaches 35°C and the fog is present in the cabinet.

6.2 Condensate Values — The solution condensate collected in each of the collecting devices shall have a sodium chloride concentration of 50 ± 10 g/l and the pH value in the range of 3.1 to 3.3 (see 2.2).

6.2.1 The average rate of collection of the solution condensate in each device measured over a minimum period of 24 hours shall be 1.0 to 2.0 ml/h for a horizontal collecting area of 80 cm^2 .

NOTE — Dilution or evaporation of the solution condensate should be avoided. The factors that may contribute to dilution or evaporation of the condensate causing variations in concentrations are:

- a) lower temperature,
- b) inadequate cover insulation, and
- c) prolonged storage of the test solution at above room temperature.

6.3 Test Solution Purity — The test solution which has been sprayed shall not be re-used. Fresh solution shall be used for every test.

NOTE — In order to compare test conditions from one laboratory to another or from one day to another, a calibration may be made by exposing nickel panels, having dimensions 100×75 mm, to the spray at each of the four bottom corners of the cabinet. The loss of mass of such panels, treated as described in Appendix A should be from 30 — 70 mg in a test period of 24 h.

6.4 Temperature Recording — The temperature within the exposure zone of the closed spray-cabinet shall be recorded at regular intervals (about 3-4 h) during the course of the test by means of a thermometer so placed as to allow reading and recording from outside the closed cabinet during the course of the test.

6.4.1 Preferably a continuous temperature recording device can also be provided. The temperature indicated when the cabinet is opened for placing specimens, observations, etc, may be low and as such may not be recorded.

7. DURATION OF TESTS

7.1 Period of Tests — The period of tests shall be as stipulated in the relevant Indian Standard covering the coating or product being tested. When not specified, it shall be as mutually agreed to between the purchaser and the supplier.

7.1.1 Recommended periods of exposure are 2, 4, 6, 8, 12, 16, 24, 48, 96, 192, 240, 480 and 720 hours.

7.2 The Spraying — The spraying shall be continuous and uninterrupted during the prescribed test period, unless otherwise specified or agreed to. The cabinet shall be opened only for brief visual inspections of the test specimens in position, re-arrange, and for checking and replenishing the test solution in the reservoir if such replenishment cannot be carried out from outside the closed cabinet.

7.3 Inspection — If the end point of the test depends on the appearance of the first sign of corrosion, the specimens may need to be inspected frequently. For this reason, such specimens shall not be tested together with other specimens requiring tests of pre-determined duration.

7.4 Visual Examination — A periodic visual examination of specimens under test for a pre-determined period may be made but the surfaces under test shall not be disturbed and the period for which the cabinet is open shall be the minimum necessary to observe and record any visible changes.

8. CLEANING OF SPECIMENS AFTER TEST

8.1 At the end of the test period, remove the specimens from the spray cabinet. Allow the specimens to dry for half an hour gently rinse in water to remove any residual chemical. Before they are examined, carefully remove residues of the sprayed solution from their surfaces. A suitable method is to rinse or dip the specimens gently in clean running water at a temperature not exceeding 40°C and then to dry them immediately in a stream of compressed air at a pressure not exceeding 200 kPa at a distance of approximately 300 mm.

9. EVALUATION OF RESULTS

9.1 Many different criteria for the evaluation of the results of this test may be applied to meet particular requirements, for example, change in mass, alterations revealed by micrographic examination, change in mechanical properties, etc. Usually the appropriate criteria will be indicated in the specification for the coating or product tested. For most

routine application of the test, only the following need to be considered:

- a) Appearance after test;
- b) Appearance after removing superficial corrosion products;
- c) The number and pattern of distribution of corrosion spots/defects, that is, pits, cracks, blisters, etc, these may be conveniently assessed by methods such as that described in IS : 6009-1970*; and
- d) The time elapsing before the appearance of the first sign of corrosion.

10. TEST REPORT

10.1 The test report shall indicate the outcome of the test according to the criteria for evaluation of results prescribed for the test. The results obtained for each of the specimens tested, and, when appropriate, the average results for a group of replicate test specimens shall be reported.

10.2 The test report shall contain information about the test procedure. This information may vary according to the purposes of the test and the directions prescribed therein, but, a general list of the details likely to be required is as follows:

- a) The description of the coating or product tested;
- b) Dimensions, shape and other details of the test specimen and the nature and area of the surface tested;
- c) Preparation of the test specimen including any cleaning treatment applied and/or any protection given to the edges, cut edges or other special areas;
- d) Known characteristics of any coating, with a indication of the surface finish;
- e) The number of test specimens subjected to the test, representing each coating or product;
- f) The method used to clean the test specimen after test, with, when appropriate, an indication of the loss in mass resulting from the cleaning operation;
- g) The angle at which the tested surfaces were inclined;
- h) The test temperature maintained, with fluctuations observed, if any;

*Method for evaluation of results of accelerated corrosion tests.

- j) The duration of the test conducted;
- k) The properties of any test panels placed in the cabinet to check the correctness of the operating conductions and the results obtained with them;
- m) Grade and purity of sodium chloride, distilled water, cupric chloride and acetic acid used for preparing the test solution;
- n) The solution condensate collected in the collecting devices terms of ml/h/80 cm² and its pH;
- p) Method and materials employed for supporting/suspending/placing the specimens in the spray-cabinet; and
- q) Interruptions in the test conducted, if any, their causes and durations.

APPENDIX A

(Clause 6.3)

CALIBRATION OF TEST CONDITIONS

A-1. GENERAL

A-1.1 This appendix describes the method for evaluating the corrosive effect of the conditions produced in the spray test cabinet. The results obtained permit a comparison to be made of the test conditions obtained in different laboratories or in the same laboratory at different times.

A-2. TEST PANELS

A-2.1 The test panels shall be cut from commercially pure nickel sheet containing not less than 99.0 percent nickel and not more than 0.15 percent carbon, 0.01 percent sulphur, 0.4 percent iron and 0.25 percent copper. A suitable sheet thickness is approximately 1 mm and the panel dimensions shall be 100 × 75 mm.

Panels to be used for the first time shall be cleaned by the general procedure specified in 4.2 and shall then be immersed for 2 minutes at a temperature of 21 to 24°C in a solution prepared by mixing 1 volume of concentrated hydrochloric acid with 4 volumes of distilled water, rinsed in warm flowing water and dried in an oven at a temperature of 105°C, cooled to room temperature and weighed. Panels used in the test may be re-used. The procedure for removing corrosion products at the end of a test will produce a satisfactory surface for a subsequent test.

A-3. ARRANGEMENT OF PANELS

A-3.1 The weighed panels shall be placed in the test cabinet with the longer edges inclined at 30° to the vertical with the upper surface facing the general direction of the incoming spray. Supports for the panels shall be made of or completely covered by inert materials such as plastics. The upper edges of the panels shall be at the same level as the tops of the spray collectors.

A-4. DETERMINATION OF MASS LOSS

A-4.1 After exposure to test for 24 h the panels shall be rinsed in cold water to remove spray residues. The corrosion products shall then be removed from each panel by immersing it for 2 minutes at a temperature of 21 to 24°C in a solution prepared by mixing one volume of concentrated hydrochloric acid with four volumes of distilled water. Tongs used to hold the panels shall be of nickel or Monel metal or shall have their contact areas covered with inert material. Each panel shall then be washed in water with a final rinse in flowing water at a temperature of approximately 40°C , dried in an oven at a temperature of 105°C , cooled to room temperature and again weighed.

APPENDIX B

(Clause 0.2.2)

SPECIFIED TESTS, EXPOSURE DURATION AND EVALUATION OF CORROSION RESISTANCE TESTS STIPULATED IN IS : SPECIFICATIONS

SPECI- FICATION	COATING	BASE	SERVICE No.	CLASSIFICATION No.	CORROSION TEST DURATION (HOURS)				EVALUATION	REMARKS		
					CASS IS : 5528- 1985	ASS IS : 6910- 1985	NSS IS : 9344- 1981	CORR IS : 8038- 1985				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
IS : 1068- 1985	Cu+Ni+Cr	Fe & steel	4	Fe/Cr20Ni30b Cr mc/mp	24	144	—	2×16	Minimum rating of 8 as per IS : 6009 for acceptance			
				Fe/Cu20Ni30p Cr r								
				Fe/Cu20Ni25p Cr mc/mp								
				Fe/Cu20Ni30d Cr r								
				Fe/Cu20Ni25d Cr mc/mp								
	Ni+Cr	do	„	Fe/Ni40p Cr r								
Fe/Ni30p Cr mc/mp												
Fe/Ni40d Cr r												
Fe/Ni30d Cr mc/mp												
	Cu+Ni+Cr	do	3	Fe/Cu20Ni35b Cr r	16	96	—	16				
Fe/Cu20Ni25b Cr mc/mp												
Fe/Cu15Ni25p Cr r												
Fe/Cu15Ni20p Cr mc/mp												
				Fe/Cu15Ni25d Cr r								
				Fe/Cu15Ni20d Cr mc/mp								
	Ni+Cr	do	„	Fe/Ni40b Cr r								
Fe/Ni30b Cr mc/mp												
Fe/Ni30p Cr r												
Fe/Ni25p Cr mc/mp												
				Fe/Ni30d Cr r								
				Fe/Ni25d Cr mc/mp								

(Continued)

IS : 6910 - 1985

**SPECIFIED TESTS, EXPOSURE DURATION AND EVALUATION OF CORROSION
RESISTANCE TESTS STIPULATED IN IS : SPECIFICATIONS—Contd**

IS : 6910 - 1985

SPECI- FICATION	COATING	BASE	SERVICE No.	CLASSIFICATION No.	CORROSION TEST DURATION (HOURS)				EVALUATION	REMARKS
					CASS IS : 5628- 1985	ASS IS : 6910- 1985	NSS IS : 9844- 1981	CORR IS : 8038- 1985		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Cr+Ni+Cr Ni+Cr	do do	2 „	Fe/Cu20Ni10b Cr r Fe/Ni20b Cr r	4	24	—	4		
	Cu+Ni+Cr Ni+Cr	do do	1 „	Fe/Cu10Ni5b Cr r Fe/Ni10b Cr r	@	8	—	—		@Not suitable
14	IS : 4828- 1983	Cu+Ni+Cr	Zn & Zn-alloys	4	Zn/Cu20Ni35b Cr mc/mp Zn/Cu20Ni35p Cr r Zn/Cu20Ni25p Cr mc/mp Zn/Cu20Ni35d Cr r Zn/Cu20Ni25d Cr mc/mp	24	144	—	2 x 18	Minimum rating of 8 as per IS : 6009-1970 for accep- tance
				3	Zn/Cu20Ni35b Cr r Zn/Cu20Ni25b Cr mc/mp Zn/Cu20Ni25p Cr r Zn/Cu20Ni20p Cr mc/mp Zn/Cu20Ni25d Cr r Zn/Cu20Ni20d Cr mc/mp	16	96	—	16	
			2 r 1 r	Zn/Cu Ni15b Cr r Zn/Cu Ni8b Cr r	4 —	24 8	— —	4 —		Undercoat of Cu or brass Min 8 m

IS : 4942-1983	Ni+Cr	Al & Al alloys	4	Al/Ni50d Cr r Al/Ni35d Cr mc/mp	24	144	—	2×16	Minimum rating of 8 as per IS : 6009-1970 for acceptance	Cu under-coat desirable for some alloys; but with no reduction of Ni-layer
			3	Al/Ni35p Cr r Al/Ni30d Cr mc/mp Al/Ni30d Cr r Al/Ni25d Cr mc/mp	16	96	—	16		
			2	Al/Ni20b Cr r	4	24	—	4		
			1	Al/Ni10b Cr r	—	8	—	—		
	IS : 8376-1977	Ni+Cr	Plastics	4	×	16	96	—	—	Minimum Thickness
				3	PL/Ni15 Cr	8	48	—	—	rating of 8 and type
				2	PL/Ni8 Cr PL/Ni5 Cr	—	16	—	—	as per IS : 6009-1970 under coat for acceptance 15 mm <i>Min</i> if required
	IS : 4827-1983	Ni+Cr	Cu & Cu alloys	4	Cu/Ni30b Cr mc/mp Cu/Ni30p Cr r Cu/Ni25p Cr mc/mp Cu/Ni30d Cr r Cu/Ni25d Cr mc/mp	16	96	—	—	Minimum rating of 8 as per IS : 6009-1970 for acceptance
				3	Cu/Ni25b Cr/r	—	24	—	—	
				2	Cu/Ni20d Cr mc/mp	—	8	—	—	
				1	Cu/Ni5b Cr r	—	—	—	—	

Less than 24 hours as agreed

(Continued)

**SPECIFIED TESTS, EXPOSURE DURATION AND EVALUATION OF CORROSION
RESISTANCE TESTS STIPULATED IN IS : SPECIFICATIONS—Contd**

IS : 6910 - 1985

SPECI- FICATION	COATING	BASE SERVICE No.	CLASSIFICATION No.	CORROSION TEST DURATION (HOURS)				EVALUATION	REMARKS	
				CASS IS : 5528- 1985	ASS IS : 6910- 1985	NSS IS : 9844- 1981	CORR IS : 8038- 1985			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
IS : 1868- 1982	Anodic coating	Aluminium & aluminium alloy	Ac 25		—	—	—	—	No. of pits more than 1/6th of area in Cm² cause for rejection	As agreed
			Ac 15	—	—	—	—			
			Ac 10	—	—	—	—			
			Ac 5	—	—	—	—			
			Ac 2.5	—	—	—	—			
IS : 6651- 1972	Anodic	Aluminium	Ac 10	12	—	—	—	Any signi- ficant sign of corro- sion cause for rejection		
			Ac 5	8	—	—	—			
			Ac 2.5	—	24	1	—			

- b Bright nickel
- p semi-bright nickel
- d Double or triple layer nickel
- r Regular chromium 0.3 mm, *Min*
- mc Micro-crack chromium 0.3 m, *Min*
- mp Micro-porous chromium 0.3 m, *Min*



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Telegrams: Manaksanstha
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AMENDMENT NO. 1 MARCH 1990
TO
IS 6910 : 1985 METHOD OF TESTING CORROSION
RESISTANCE OF ELECTROPLATED AND ANODIZED
ALUMINIUM COATINGS BY ACETIC ACID SALT SPRAY
TEST
(First Revision)

(Page 6, clause 3.1, line 1) — Substitute ' 0.43 m³ ' for ' 0.4 m³ '.

(MTD 20)

Reprography Unit, BIS, New Delhi